Lifeline 4 and Rotacam

Description

Pneumatic Rotacam

Based on the highly successful conventional Rotacam, the Pneumatic Rotacam has the same design features except that it gives positive acting isolation of a machine's compressed air supply instead of an electrical power source.

The switch is mounted at the hinge point of the guard door. The bored stainless steel operating shaft is mounted in a sealed bearing which is so robust that it enables the switch itself to be used as the hinge pin if necessary.

The pneumatic valve specifications are shown below. The external switch dimensions and operating shaft specifications are the same as the conventional Rotacam.

Note: The Pneumatic Rotacam does not have the adjustable cam used with the standard Rotacam.

Pneumatic Lifeline 4

Based on the conventional Lifeline 4 this rope operated pneumatic safety switch can be used for guarding exposed pneumatic machinery and conveyor equipment.

The Pneumatic Lifeline 4 is immune to machine vibration thus overcoming the problem of nuisance tripping.

The pneumatic valve specifications are shown below. The external switch dimensions are the same as the conventional Lifeline 4.

Features

Pneumatic Rotacam

- Can be used as a hinge pin with light and medium weight guard doors on pneumatic machinery
- Isolates pneumatic power within 5° of guard movement

Pneumatic Lifeline 4

- Switches pneumatic power with up to 75 meter span
- Lid mounted emergency stop button, designed to EN418
- Switch lockout with indication of rope pulled and rope slack

Specifications

Standards Pnuematic Rotacam	IEC 60947-5-1, ISO 14119, ISOTR 12100
Standards Pneumatic Lifeline 4	IEC 60204-1, IEC 60947-5-1, ISO 14119, ISOTR 12100, IEC 60204-1, ISO 13850
Pneumatic Fluid	Compressed air or neutral gas
Pressure Range	2…8 bars
Passage Diameter	2.7 mm
Connection Type	Push in fittings for standard 4 mm Ø nylon tube, internal Ø 2.5 mm
Flow Rate	138 NL/min. (ie., number of liters of air at normal atmospheric pressure obtained with the output open to atmosphere and the supply pressure at 4 bars).
Mechanical Life	1,000,000 operations
Operating Temperature [C (F)]	10…60° (50…140°)

Note: For other specifications and dimensions see relevant specifications of standard product.

Product Selection

Type	Cat. No.
Rotacam	440H-P03035
Lifeline 4	440E-P13045

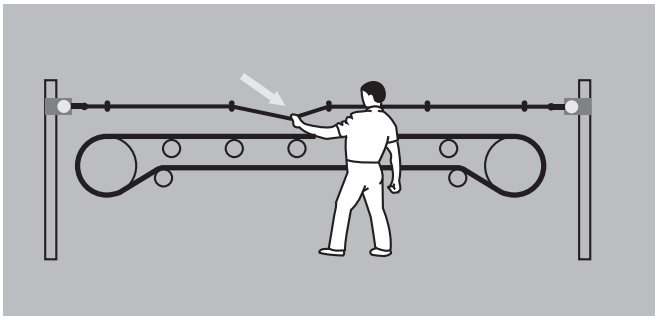
Note: See standard Lifeline 4 for installation kits, etc.

Cable Pull Switches

Overview

Cable Pull Switches Overview

For machinery such as conveyors, it is often more convenient and effective to use a cable pull device along the hazard area (as shown in the figure below) as the emergency stop device. These devices use a steel wire rope connected to latching pull switches so that pulling on the rope in any direction at any point along its length will trip the switch to cut off the machine power.



The cable pull switches must detect both a pull on the cable as well as when the cable goes slack. Slack detection ensures that the cable is not cut and is ready for use.

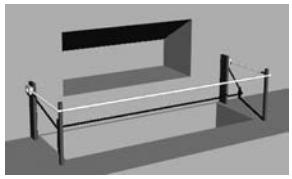
Rockwell Automation developed a unique Lifeline Rope Tensioner System (LRTS) which helps enable quicker installations.

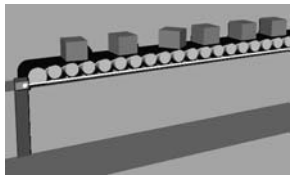
A dedicated stainless steel installation kit must be used with the stainless steel Lifeline 4 instead of the LRTS.

Selection Guide

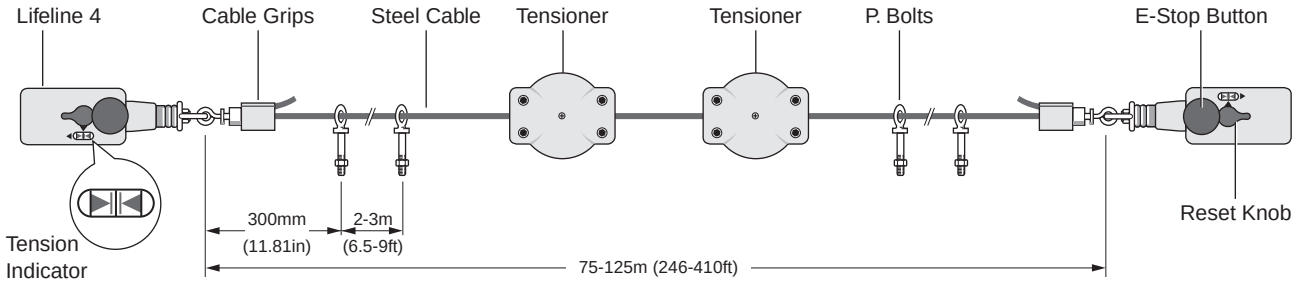
Description	Lifeline 3	Lifeline 4	Stainless Steel Lifeline 4
Material	Painted Zinc Alloy	Painted Aluminum Alloy	Stainless Steel 316
Reset	Yes	Yes	Yes
E-Stop	No	Yes	Yes
Cable Span	30 m (98.42 ft)	75 m (246 ft) 125 m (410 ft) extended model	75 m (246 ft)

Typical Applications





Mounting Specifications for Extended Length Models



Notes:

1. The first and last **P. bolt/eye bolt** must be located as close as possible to the switch eyelet while maintaining adequate clearance (125 mm/5 in) from the cable grips to allow free movement. This provides for a straight and efficient pulling action on the switches.
2. Additional **P. bolts/eye bolts**, spaced 2-3 m (6-9 ft) apart, help keep the perpendicular pull force, F, and distance, d, within IEC60947-5-5 specifications of 200 N (45 lbs) and 400 mm (15.75 in).
3. We recommend using a switch at both cable ends, especially in applications with long cable runs or cable runs going around bends. This helps ensure that the safety function is fulfilled upon actuation of the cable in any direction.
4. ISO 13850 requires that the full length of cable to be within view when the reset is turned to the run position or the machine must be inspected over the whole length of the cable, both before and after resetting.
5. On shorter cable runs (max 10 m), a Lifeline tensioner spring may be used at one end of the span. The installation must be such that the above requirements can be met. When a spring is used, the last **P. Bolt/eye bolt** must be located as close as possible to the spring while maintaining adequate clearance (125 mm/5 in) from the cable grips to allow free movement. This is intended to help to ensure that a pull near the end of the cable will be between **P. Bolts/eye bolts**. This should result in operation of the switch contacts instead of only the spring moving.
6. Careful attention is required for the design of the installation to ensure that the cable is not likely to become trapped or snagged. This is especially important when using a tensioner spring because a cable snag between the location of the pull and the switch could prevent the actuation of the safety function.
7. It is essential that when the installation is complete, a thorough functional test is made. This should include checking all types and directions of pull over the length of the cable as well as checking for slack-cable tripping.

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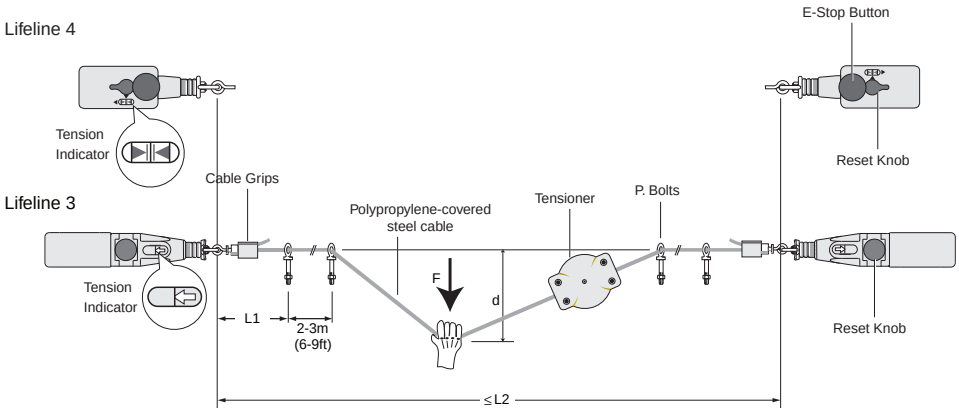
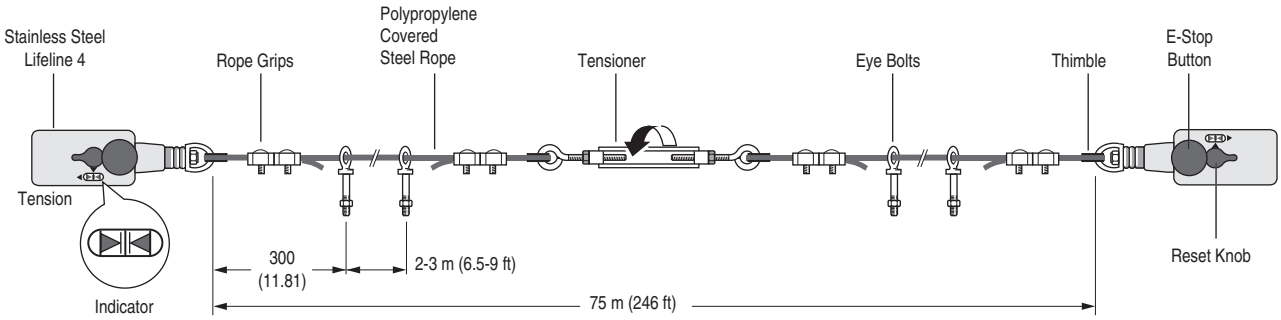
Publication S117-CA001A-EN-P

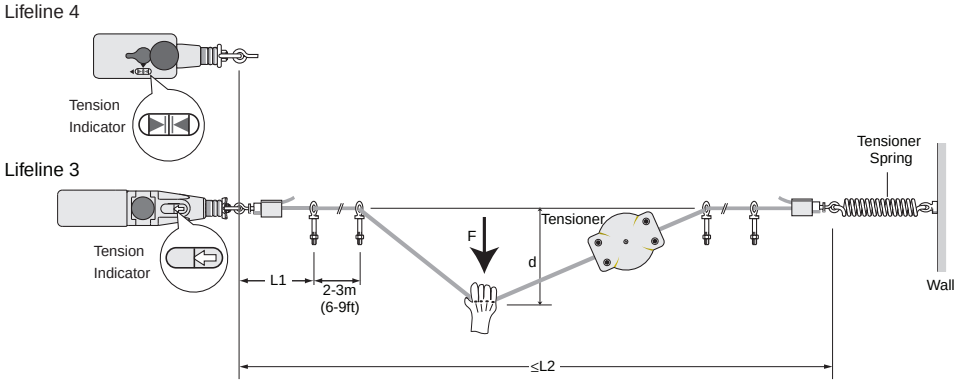
Mounting Specifications for Standard Rope Length Models



	L1	L2
Lifeline 4	300 mm (11.81 in)	75 m (246 ft)
Lifeline 3	125 mm (5 in)	30 m (98 ft)



Mounting Specifications with Spring Tensioner



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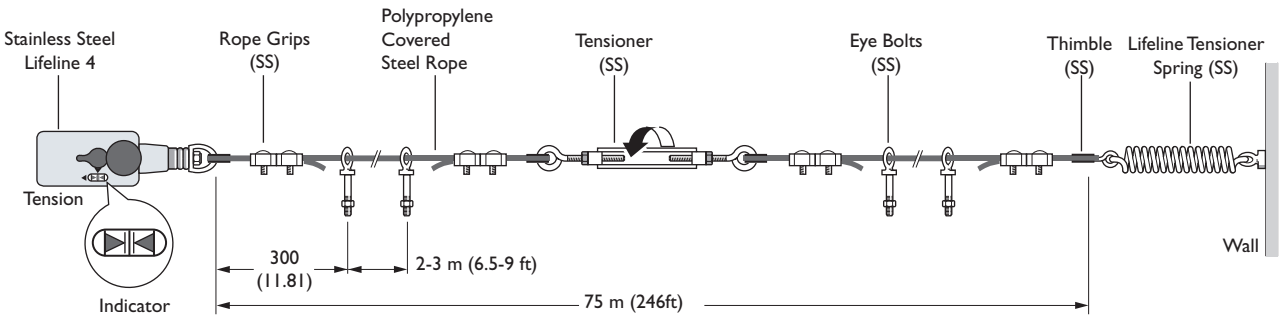

The choice between using two switches or one switch and a spring is a matter of a risk assessment taking into consideration the probability of a trapped rope along the span. See also notes 3 and 6 on the previous page.